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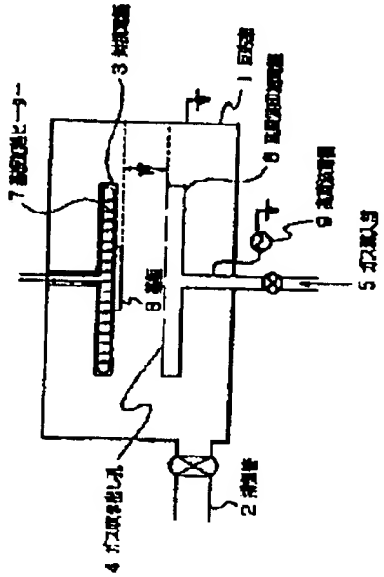
TITLE : MANUFACTURE OF POLYCRYSTALLINE SILICON FILM



no pressure

ABSTRACT : PURPOSE: To grow a polycrystalline silicon film on a glass substrate at a low temperature of about 200°C by diluting gas, which contains silicon, with hydrogen at large flow rate, and growing a film with a plasma CVD device.

CONSTITUTION: In the case that silane is used for reaction gas, the flow ratio of hydrogen gas to silane gas; SiH_4/H_2 is 1.0-5.0%, and substrate temperature is 200-300°C, and the distance W between electrodes is less than 45mm. A film is grown on a glass substrate 8, with high frequency power as 0.01-5.0W/cm^2. Since poly-Si can be made at about 200°C in substrate temperature, low-melting point glass can be used, and it has great effect on cost reduction of a TFT device. Moreover, since halogen etching gas is not used, there is no mixing in of impurities, which cause the deterioration of the property of a device, in the film. And the film is produced in hydrogen gas plasma, so hydrogen passiration is not necessary after the film formation. Thus high quality poly-Si thin film can be formed.